

Crayfish Dissection Procedure

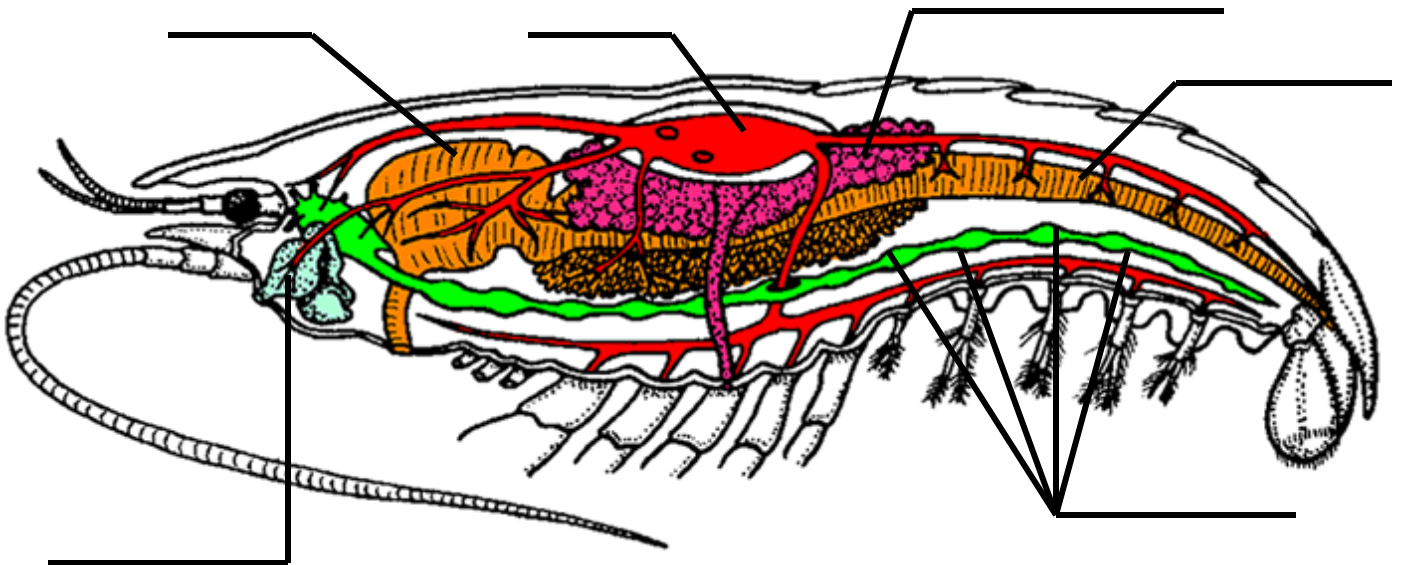
External Anatomy:

1. Begin with your crayfish placed dorsal side up (as it would appear if walking around the pond). Note that the crayfish has two distinct body regions. The anterior region is the cephalothorax. The posterior region is the abdomen. The cephalothorax is covered by an extremely hard exoskeleton referred to as the carapace. We will remove this in a later step to expose the internal organs.
2. Examine the structures attached at the anterior of the crayfish. It has two pair of feelers (one long & one short). The long feelers are antennae while the shorter ones are called antennules. The two compound eyes are black and located on the end of a short stalk.
3. Turn your crayfish upside down (ventral side up). Notice the two different types of legs. The anterior pair of legs are modified into a claw for grabbing objects. This claw is more scientifically referred to as a cheliped. The other four pairs of legs are known as walking legs. When you have completed the internal anatomy portion of the lab remove these and place them on your circle page. Leave them in place for now as they will help keep your crayfish in the right position for the rest of the dissection.
4. Examine the appendages found on the ventral surface of the abdomen (located posterior to the walking legs). These appendages are known as swimmerets. They aid the crayfish in swimming, holding eggs and young crayfish, and circulating freshwater to the gills (found under the sides of the carapace). The anterior most pair identify the crayfish as either male or female. If this pair is significantly larger than the rest (usually tucked between the walking legs) it is a male. If they are approximately the same size as the rest it is a female.

Internal Anatomy:

5. Place the crayfish dorsal side up. Remove the carapace by carefully cutting from the back of the cephalothorax toward the anterior end of the organism just behind the eyes. Now cut straight down both sides until you reach the bottom of the carapace. Be careful not to cut too deep as you cut. Many internal organs lie just beneath the exoskeleton. Some of these organs may be stuck to the carapace as you try to remove it. Gently scrape them off before removing the carapace. Place the two pieces of carapace on the circle page.
6. Examine the white, feather-like gills found on the sides of the crayfish body. They are responsible for extracting oxygen from the water. Before removing them, look carefully for the heart. It is found between the gills on the upper most surface of the body just in front of where you began cutting the carapace. It has the appearance of a small pink box with tiny holes in it. Remove it and place it on your circle page. Then do the same with the gills.
7. Just under the gills you just removed is some thin, yet tough, connective tissue that separates the gills from the more internal organs. Carefully remove this tissue to reveal the other internal organs.
8. You should now see two long, yellowish organs stretching the entire length of the carapace. These are the digestive glands. Remove them and place them on your circle page.

9. Found just between the digestive glands at the anterior end of the body cavity is the stomach. Depending on how recently your crayfish has eaten it will look differently. It may be a large sac filled with dark colored organic material or an empty sac that is a light brown color and almost see thru. Remove it and place it on your circle page.
10. On either side of the removed stomach are two large circular structures attached to a large stalk. These are the mandibular adductor muscles. They are attached to the inside of the carapace and when contracted cause the mandibles (jaws) to come together. Remove them and place them on your circle page.
11. Found just in front of where the mandibular adductor muscles were attached to the bottom of the body cavity are two small, white, circular pads. These are the green glands and are the excretory organs of the crayfish. They excrete liquid wastes through a pore next to the mouth of the crayfish.
12. In order to find the intestine we must remove the exoskeleton covering the dorsal surface of the abdomen. Do this by inserting the scissors under the exoskeleton just in front of the tail. Carefully cut from posterior to anterior until you have reached the front of the abdomen. Peel back the halves of the exoskeleton to reveal the long, dark colored intestine below. Carefully remove it and place it on your circle page.
13. Finally, remove the abdominal muscle. The white tube found below it and running the entire ventral length of the body is the nerve cord. There is a large bundle of nerves (yet still too small to distinguish from the rest of the cord) in each segment of the crayfish body. These bundles of nerves are called ganglia.
14. After cleaning up your lab station and materials label the following four diagrams.



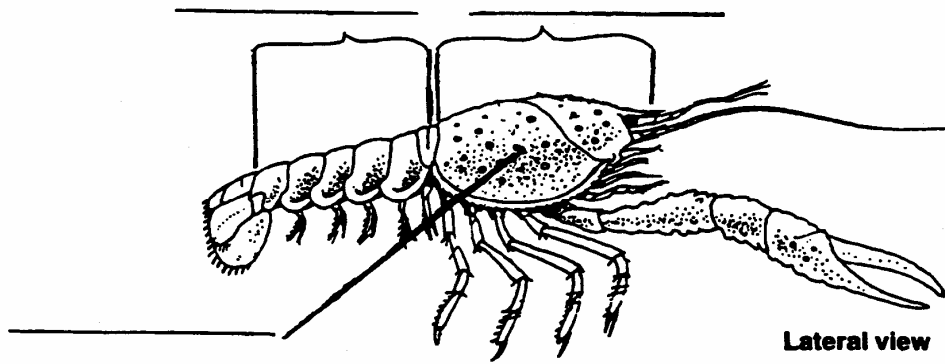


DIAGRAM A

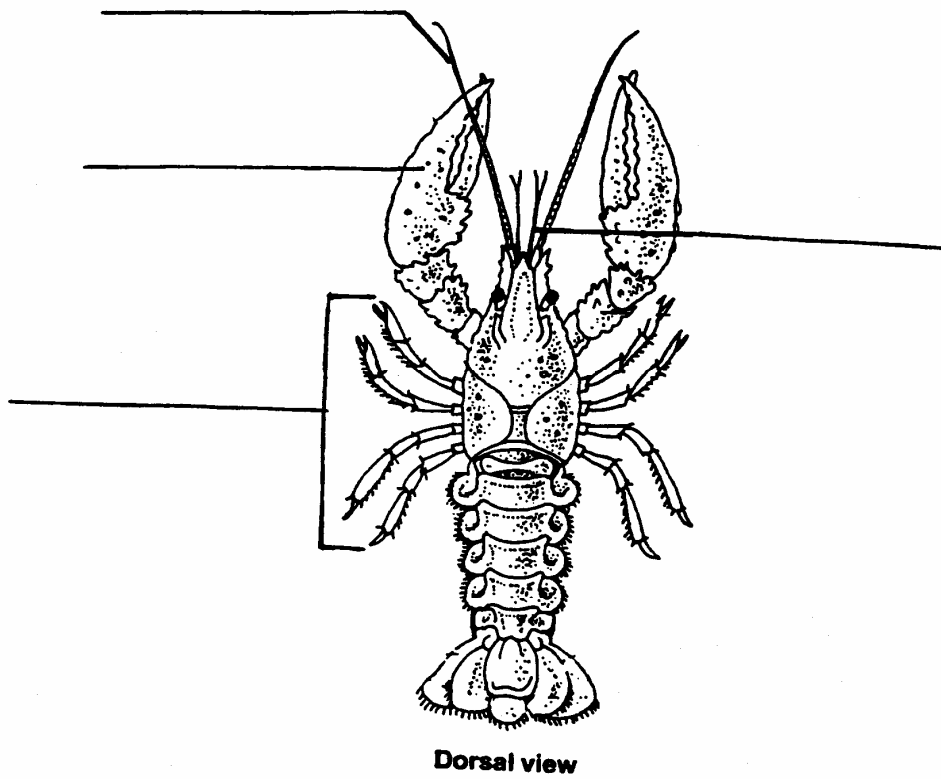


DIAGRAM B

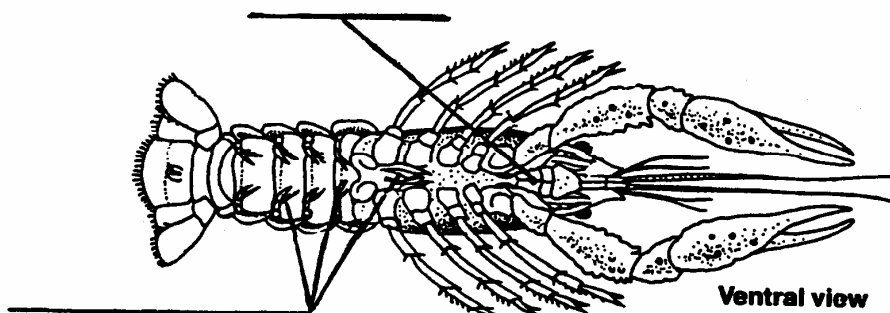


DIAGRAM C